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GIFFORD PINCHOT, Forester.

SILVICAL LEAFLET 30.

CALIFORNIA SWAMP PINE.

Pinus muricata Don.

California swamp pine is a tree of minor importance. It grows only in a narrow strip along the California coast, and, although a tree of good form, the wood is too perishable to make good lumber. It does good service in binding the drifting sands of the coast, but back from the coast it encroaches on the redwood lands, and by its faster growth often drives out the more valuable redwood and Douglas fir.

RANGE AND OCCURRENCE.

The swamp pine is found, usually in widely separated localities, on the coast of California from Mendocino County to San Luis Obispo County, and in Lower California between Ensenada and San Quentin, and on Cedros Island. In elevation it ranges from sea level to 2,500 feet.

It occurs in swamps, sandy plains, or steep, wind-beaten sand hills near the sea, and reaches its best development in the northern part of its range in the peat bogs—which are water-soaked, sandy plains, covered with ericaceous plants, and do not resemble peat bogs in the East. On the better soil of the uplands it sometimes ascends to 2,500 feet, but rarely extends more than 10 miles inland.

CLIMATE.

The temperature rarely goes below 25° or above 95° F. in any part of its range. Rainfall varies from 20 inches in the north to 11 inches in the south, and snow is almost unknown. The moisture content of the air is high; more than one-third of the days are cloudy or foggy.

ASSOCIATED SPECIES.

On sandy plains it occurs in pure, crowded stands of slender trees. On cold, clay soils it is often associated with *Pinus contorta* and *Cupressus goveniana*; it is also found in mixture with live oaks, Douglas fir, California laurel, and madroña.

HABIT.

California swamp pine is never a very large tree, and is usually 45 or 50 feet high and from 2 to 2½ feet in diameter, but in best situations, such as peat swamps and redwood lands, it attains a height of from 80 to 150 feet and a diameter of from 2 to 3 feet. It has a regular, pyramidal crown in youth, which becomes a compact, round-topped head on older trees. The foliage is very dense and dark colored. The bark is thick, often from 4 to 6 inches on old trees. This renders mature trees of the species very resistant to fire.

This pine is rapid-growing throughout life, even on the very barren beach soils where conditions for growth are most unfavorable.

SOIL AND MOISTURE.

It is extremely moderate in its demand on the moisture and quality of soil. It thrives in poor, dry, gravelly sand as well as in peat bogs, but attains its largest dimensions in the latter. It is found also on cold, clay soils.

TOLERANCE.

It is one of the most tolerant pines, and frequently forms dense stands, with fairly heavy crown cover and good humus conditions.

REPRODUCTION.

The cones often remain closed on the trees for a number of years. The seeds have large wings and are adapted to wind distribution. The young growth is tolerant and grows in dense stands.

The swamp pine is aggressive and seems to be extending its range. Cut and burnt-over redwood lands, in particular, are often seeded up by swamp pine.

